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RELATIONSHIPS BETWEEN MATERNAL INTERFERENCE AND
THE REFLECTIVE-IMPULSIVE RESPONSE STYLE OF
THE PRESCHOOL CHILD

BY



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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF EDUCATION

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

EDMONTON, ALBERTA

FALL 1969

1964(F)
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UNIVERSITY OF ALBERTA
FACULTY OF GRADUATE STUDIES

The undersigned certify that they have read,
and recommend to the Faculty of Graduate Studies for
acceptance, a thesis entitled "Relationships Between
Maternal Interference and the Reflective-Impulsive
Response Style of the Preschool Child" submitted by
John B. Acheson in partial fulfillment of the require-
ments for the degree of Master of Education.

ABSTRACT

The purpose of this study was to examine the relationships between maternal interference and the extent of a child's reflectiveness in his problem solving behavior. The author hypothesized that maternal interference would be positively related to the child's response latency and negatively related to the number of errors he would make.

The sample consisted of thirty-two mother-child dyads selected from a middle socio-economic area of the City of Edmonton. The children, none of whom had any kindergarten experience, ranged in age from four years to four years and eleven months. Videotape recordings were made of mother-child interactions. The tapes were analysed to determine the number of times a mother interfered with her child and thus hampered an activity or process in which he was involved. These measures of interference were correlated with separate measures of the child's response latency and errors. Response latency and errors which served as a measure of the child's reflectiveness were determined by Brady (1969) in his doctoral dissertation.

The findings, as predicted, demonstrated a negative relationship between maternal interference and response latency, and a positive relationship between maternal interference and errors. It was found, using Spearman's

rank order correlation, that both relationships were significant at the .05 level. Thus the author concluded that interfering mothers tend to develop in their children an approach to problem solving that is characterized by an impulsive response style.

ACKNOWLEDGEMENTS

The writer wishes to express his appreciation to Dr. G. Lefrancois, chairman of the thesis committee, for his constant guidance and encouragement. Special thanks are extended to Dr. P. Brady for the many hours spent on my behalf and also for the permission to use his data for a major portion of this study. Further recognition is extended to J. Gallager for his helpful suggestions and comments. Finally, I would like to thank my wife, Pat, for the encouragement and effort she provided throughout the development of the thesis.

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CHAPTER I

INTRODUCTION

I. STATEMENT OF THE PROBLEM

The study investigated the relationship of an aspect of the home environment to the cognitive behavior of children. Specifically, it examined the relationship between maternal interference and the reflection-impulsivity of four year old children.

The present study was based on data collected by Brady (1969) for his doctoral dissertation. Brady (1969) investigated the relationships between maternal control, communication and cognitive behavior of the pre-school child. Brady's (1969) measures of the reflective-impulsive response style of four year old children were used and correlated with the author's measures of maternal interference.

It is generally accepted that varying degrees of cognitive ability found in individuals is a result of both innate differences and environmental factors. In defining the environmental factors and attempting to determine their relationship to cognitive behavior, researchers have done extensive work comparing inter-socio-economic classes. However, relatively little work has been done in trying to isolate and study factors that account for individual differences in children who come from a homogeneous social

or educational background (Brady, 1969).

Farquhar (1965) feels that investigators must try to isolate and identify variables other than socio-economic factors, within the home environment. These might help explain why there is such a variation in certain behavioral characteristics among children. He stresses the point when he states:

No serious scholar today is likely to believe that sociological characteristics -- social class, father's occupation, parents' education and type of dwelling, can become anything more than an approximate index of a child's home environment (Farquhar, 1965).

Farquhar's (1965) comments indicate that intra-socio-economic group variations have as much, if not more effect on cognitive behavior than do inter-socio-economic group variations.

Dave (1963) and Wolf (1964), in studying intra-group variables that affect cognitive behavior, attempted to isolate more exact indicators of home environment. They (Dave, 1963; Wolf, 1964) believe that it is what parents do rather than what they are that results in the formation of a particular educational atmosphere in the home. Dave (1963) and Wolf (1964) hypothesized that there were certain characteristics within the home which influence the academic achievement of the child, and that these characteristics when measured would have a higher correlation with achievement and intelligence than had the previously

used socio-economic characteristics. Wolf (1964) calls these characteristics "sub-environments" and believes that the development of various types of behavior can be studied in terms of these sub-environments. He claims:

It would seem to us that environments for the development and maintenance of such characteristics as dependence, aggression, dogmatism and others could be delineated and measured and systematically related to measures of that particular characteristic (Wolf, 1964, p. 499).

Wolf (1964) speaks of one of these sub-environments as achievement-pressure which he defines as:

... the parents' aspirations for the child..., their interest in, knowledge of, and standards of rewards for the child's educational achievement.

It would appear to the author that achievement-pressure could become such a force within the home that it could have a detrimental effect on the cognitive development of the child. As will be pointed out in the review of the literature, parents who become anxious about their child's problem solving success may, through interfering, cause him to develop a style of problem solving behavior which inhibits analytic thought (Kagan, Rosman, Day, Albert and Phillips, 1964). Hess and Shipman (1965) reinforced such thinking when they concluded that the growth of cognitive processes is fostered in families which offer and permit a wide range of alternatives of action and thought. They (Hess and Shipman, 1965) also concluded that families

which restrict the exploration of alternatives, through interference, inhibit cognitive development.

Brady (1969) further focuses on the problem when he expresses the idea that maternal communication might be expected to facilitate or inhibit the child's cognitive growth. Bruner (1966) reinforces this thinking when he points out that many cognitive skills are taught in the subtle interaction of parent and child and that early experiences are vital for full development of these skills. However, in order to develop these cognitive skills a child must have the opportunity to explore, experiment, and make mistakes. He must not be deprived of the rich diet of impressions and experiences into which his natural curiosity will lead him. As Sloan (1967) points out, parents who provide all the answers and deny their children the opportunity of making mistakes are taking away from their children a great educational opportunity. Intellectual development also depends upon the systematic interaction between a tutor and a learner and such development is marked by the capacity to deal with alternatives (Bruner, 1966). Since learning and problem solving depend upon the exploration of alternatives, instruction must facilitate and regulate the exploration of alternatives on the part of the learner (Bruner, 1966).

It follows, then, that any regimen of correction, domination, or excessive interference by a formal teacher

or parent might be expected to inhibit the exploration of alternatives which leads to increased learning. It would tend, perhaps, to have the child become dominated by strong extrinsic rewards and punishments. Hilton (1967) claims that the effect of excessive interference is to create standards that the child must fulfill. Because the goals are not set by him, the child's satisfaction must come from pleasing others. Only when a child has some internal motivation, only when he is accustomed to accepting mistakes as part of the problem solving process, and only when he feels adequate in overcoming obstacles through his own initiative can effective learning take place (Bruner, 1966; Sloan, 1967). Therefore, it seems a logical possibility that if a child is not allowed time to reflect over various alternatives because of an interfering mother he will tend to become conditioned to answering impulsively. This impulsiveness will be reinforced by satisfying the need, as set by his mother, of solving a problem quickly (Baldwin, 1948). The child receives satisfaction through pleasing his mother. Such thinking is reinforced by Festinger's (1954) comments when he points out that when there are no objective standards to use as reference points one is more likely to be influenced by the attitudes of others. The effect of excessive interference, then, is to create standards that the child must fulfill, not for his own sake, but for the sake of someone else.

In summary, research into the cognitive behavior of children was initially centered around the study of the differential effects of innate factors as opposed to learned factors. Following this the emphasis was on the comparison of different socio-economic environments. Experimentation in this area therefore concentrated on the effects of parents and home environments. The present emphasis of research now appears to be centered on single observable factors in an experimental setting, and how these relate to the total intellectual development of the individual. The current study purposes to investigate further the relationship between cognitive behavior and one such observable factor -- maternal interference.

II. NEED FOR THE STUDY

Although it is generally acknowledged that environmental factors greatly influence a child's intellectual development, there has been relatively little rigorously controlled research carried out to determine which aspects of the environment are most influential and which are relatively unimportant. As mentioned above, the search for factors that influence academic abilities and cognitive behavior now focuses on "mechanisms of exchange that mediate between the individual and his environment" (Hess and Shipman, 1965). Similarly it has become clear that child-rearing practices have a direct influence on the intellectual development of

the child. A number of measurable characteristics have been discovered in the home environment which have a great influence on both the educational achievement and intelligence of a child (Dave, 1963; Wolf, 1964). If one of these hypothesized characteristics, maternal interference, tends to inhibit a child's intellectual development there is a need then for research into this area. As Sharrock (1968) suggests it is important to find out what a "good" parent does that is so helpful and stimulating for a child's educational and intellectual progress. One of the purposes of this investigation was to provide information for parents and teachers informing them of the nature and extent of the influence on cognitive behavior of this particular characteristic, that is, maternal interference.

III. ORGANIZATION OF THE THESIS

Chapter II includes a review of the related literature which is limited to research, periodicals, and books concerned with the present study. A few investigations with relevance to the general area of early childhood education and development are also included. Chapter III consists of the definitions, hypotheses, and limitations of the study. Chapter IV deals with experimental design, sample and statistical analysis. The results and interpretations are presented in Chapter V. Chapter VI presents the discussion

and implications for education and for further research.

CHAPTER II

REVIEW OF RELATED LITERATURE

I. LITERATURE DEALING WITH REFLECTION-IMPULSIVITY

Since the early sixties, Kagan and his co-workers have been studying a disposition or style of behavior which they have labelled "reflection-impulsivity" (Kagan, Rosman, Day, Albert, and Phillips, 1964). This disposition, described as, "the tendency to consider alternative solution hypotheses when many alternatives are available simultaneously (Kagan, et al., 1964)", seems to be different from other response styles in the current literature.

The existence of a reflection variable was first observed in the behavior of individuals on a classification task (Kagan, Moss, and Sigel, 1963). The investigations indicated that the tendency to delay a conceptual decision was associated with the production of analytic concepts when children were asked to pick out a pair of pictures (from sets of three pictures) that were alike or went together in some way. In 1964 Kagan, et al., demonstrated the consistency of an analytic attitude across situations and suggested that the more fundamental processes of reflection versus impulsivity are primary determinants in the production of analytic concepts. They also noted that

experimental manipulation of the tendency to reflect upon alternative solutions increases analytic concepts while a set to respond quickly interferes with analytic responses. This ability to analyse concepts is related to two distinct variables: the tendency to analyse a stimulus into its elemental components and the tendency to inhibit impulsive answers (Kagan, et al., 1964). It was also found that in grades one to four there are consistently high negative correlations between response latency and frequency of recognition errors in discrimination tasks that use geometric designs or familiar objects. The impulsive child who makes fast decisions usually makes more errors than the reflective child who has long decision times (Kagan, 1964). Sieber (1969) makes the point that an impulsive response style greatly inhibits the child's ability to think through a problem situation. She feels that the child should be encouraged to take time to generate alternative solutions, and points out that when individuals are encouraged and rewarded for thinking of alternatives to situations, their general ability to do so increases. It would appear from the current literature that such an analytic approach to problem solving greatly improves achievement. Bruner (1966) extends this idea when he speaks of intellectual development as being marked by the capacity to deal with many alternatives.

Kagan (1965), in studying the relationship between reflection-impulsivity and reading ability found that the influence of reflective delay is maximal when the subject has already learned the rudiments of the skill necessary to perform the task but has not overlearned the skill to a point where delayed responding does not facilitate an initially accurate solution. The same study also indicated that subjects with long response latencies are actively considering alternative answers during the delay period and are not merely sitting passively. Such an observation is important to dispel the idea that long response latencies merely reflect a strong inhibition in offering response, perhaps arising out of fear of responding with a strange adult. The study pointed out that primary-grade children who characteristically reflected over alternative hypotheses in situations with high response uncertainty would be more accurate in recognizing words than children who reported hypotheses impulsively without consideration for their probable validity.

II. LITERATURE ON ORIGINS OF REFLECTION-IMPULSIVITY

Some correlates of the reflection dimension are present so early that it is difficult to relate differences in decision speed to any particular early experiences of the child (Kagan, 1966). Kagan's speculations as to the origin of the dimension have ranged variously from subtle

cerebral insult (Kagan, et al., 1964) to differences in risk orientation (Kagan, 1965) to his current view of a conflict between cultural values (Kagan, 1966). He believes that a child's tendency to be reflective or impulsive (in tasks having response uncertainty) is a function of the balance between two cultural standards: "get the answer quickly" versus "don't make a mistake". The interaction between the positive value of quick success and the anxiety generated by the possibility of making errors determines the child's decision time. Kagan asserts that if a child's anxiety over making errors is stronger than his desire for quick success, he will be reflective. If, on the other hand, his anxiety over making errors is low in comparison with his desire for quick success, he will be impulsive (Kagan, 1966).

If the cultural values Kagan speaks of are considered an integral part of the home environment then a child's response style would appear to be a function of the type of educational environment he is exposed to in the home. Interference and inconsistency in the home undermine the child's opportunities to develop reference points for internal evaluation (Festinger, 1964). Parental dogmatism has been shown to adversely affect problem solving ability, cognitive functioning, and independence (Fillenbaum and Jackson, 1961; Klein, 1966). Both Hilton (1967) and Festinger (1954) have shown that parental interference increases dependency in children. It can be assumed, then, that parental interference, like

parental dogmatism, would also tend to adversely affect the child's problem solving ability and cognitive functioning. If a mother continually interferes with her child in her anxiousness to have him respond quickly, the child will become conditioned to this demand (Bruner, 1966; Couch and Keniston, 1960; Kagan, 1966). This theory is based on the work of Couch and Keniston (1960) who believe that young children internalize their parents' demands and wishes. The effect of excessive interference, then, is to create standards that the child must fulfill (Hilton, 1967). The child's major concern will be to "get the answer quickly"; his second concern will be to "not make a mistake" (Kagan, 1966).

Based on the foregoing information, what is needed for the development of an analytical approach to problem solving is a defusing of intellectual activity from the demands of immediate action, affect, and drive. Such a defusing depends upon a child's having the opportunity to play and explore. He must be free to experience the intrinsic reward for competence and not be forced to depend on extrinsic rewards. He must "start a career of learning for its own sake" (Bruner, 1966).

Whatever the origin of the dimension, the educational process confronts children with a large number of tasks that involve evaluation before responding; hence it is important that we have more knowledge of the origins and character-

istics of the reflection-impulsivity dimension introduced by Kagan and his co-workers.

III. LITERATURE ON MATERNAL CONTROL

There is an abundance of literature on the effect of the home environment on the development of personality and intellectual functioning in the child (Wiseman, 1964; Baldwin, 1949, Peterson, 1959). However, very little research has been carried out investigating environmental factors, specifically the sub-environment of maternal interference, within a homogeneous stratum to account for differences in children's cognitive behavior. Friedman (1967) stresses the importance of further research into the social nature of the mother-child relationship under more natural conditions. Such research is particularly important if one accepts Bruner's (1966) thinking that intellectual growth is dependent upon a tutor-learner interaction and that without such interaction growth is unable to proceed.

In discussing maternal control Bernstein (1964) noted that if the mother is constrictive in her verbal interaction with the child, the lack of alternatives precludes a tendency for the child to reflect, to consider, and to choose alternatives for speech and action. It results in ways of dealing with problem situations which are impulsive rather than reflective and which deal with

the immediate rather than the future. Conversely, less restrictive parents allow their children to develop modes of behavior that permit expression of a wider and more complex range of thought tending toward discrimination among cognitive and effective content. In general this allows them to become more analytic through reflective behavior. Callard (1968) made a similar observation when he noted that maternal attitudes and practices are decisive factors in the development of a child's cognitive function. Kagan, Moss and Sigel (1963) also found that mothers who tended towards nonverbal rather than verbal teaching produced more impulsivity in their children. In a related study Hess and Shipman (1965) speak about elaborated and restrictive codes of communication. They concluded that a restrictive type of verbal behavior tends to inhibit intellectual growth. Elaborated codes on the other hand permit and encourage the individual to expand the range and detail of the concepts and information involved. Bernstein as reported by Hess and Shipman (1965) elaborated on his previous study when he spoke of two types of family control. One is oriented toward control by status appeal or ascribed role norms. The second is oriented toward persons. Families differ in the degree to which they utilize each of these types of control. Hess and Shipman (1965) make the point that children in status-oriented families are regulated in terms of the role that is expected of them. They do not

have the opportunity to contribute to family decisions as unique individuals nor is there much interaction between parent and child. Norms of behavior are stressed with such imperatives as, "You must do this because I say so", or, "Girls don't act like that", or other statements which rely on the status of the participants or a behavior norm for justification (Bernstein, 1964). In a related study Hess and Shipman (1965) report that a status oriented environment produces a child who relates to authority rather than to rationale, who, although often compliant, is not reflective in his behavior, and for whom the consequences of an act are largely considered in terms of immediate punishment or reward rather than future effects and long-range goals. Another detrimental effect of maternal dogmatism can be deduced from Klein's (1966) findings when he noted that authoritarianism is inversely related to abstract reasoning, concept formation and deductive reasoning. Because this dogmatic attitude will tend to be passed on to the children (Blum, 1954) it follows that the cognitive functioning of the children would likewise be adversely affected. In a similar study, Bing, (1963) noted that democratic homes in which there was a warm positive family atmosphere, free from excessive restrictions, tended to increase the rate of cognitive development in the children.

In considering the preceding comments it appears that

a child's cognitive behavior and development is dependent on the opportunities he has for the exploration of alternatives. Instruction must facilitate and regulate this exploration of alternatives (Bruner, 1966). It would follow that mothers who inhibit or prevent the exploration of alternatives will thus depress the development of their children's cognitive abilities. The picture that seems to emerge is one in which children who are subjected to an excessive amount of maternal interference and dogmatism have a tendency to act without taking sufficient time for reflection and planning. As a result of this impulsive response style such children tend to be less analytic in their problem solving approach. This in turn often results in the child experiencing a greater number of situations involving failure (Kagan, 1964).

CHAPTER III

DEFINITIONS AND HYPOTHESES

I. DEFINITIONS

Impulsive-reflective response style. The cognitive disposition made up of the variables response latency and errors.

Response latency. The time in seconds taken from the initial presentation of the stimulus to the child's initial response.

Errors. The total number of incorrect choices the child makes before the correct choice is made from several alternatives.

Total maternal interference. Any verbal or non-verbal act by the mother that hampers an activity or process in which the child is involved. There must be, in the opinion of the investigator, intention by the mother to change the child's behavior immediately.

(a) Examples of maternal interference:

(i) When the child is exploring or experimenting with an object and the mother demonstrates the proper use or procedure without first being asked to do so by the child.

- (ii) A refusal to allow an action which has been initiated by the child.
 - (iii) A verbal correction while the child is trying to give an explanation.
 - (iv) Demanding the child's attention as opposed to capturing it through motivation.
 - (v) Saying, No! while the child is attempting a task.
 - (vi) Not letting the child leave the table.
- (b) Examples of non-interference:
- (i) When the mother gives aid to the child after it has been requested.
 - (ii) A question by the mother for the purpose of gaining the child's attention as opposed to demanding his attention.
 - (iii) A verbal refusal to allow an action after the child has asked permission. (The investigator did not wish to make the assumption that the child had internalized a desire to initiate the action requested).
 - (iv) A parental request, i.e. "Do you want to do this?"
 - (v) Questioning an error as opposed to making a correction, i.e. "Does that go there?"
 - (vi) Continual supportive behavior by the mother

(as in (iv) an assumption would have to be made that the continual verbal support was preventing the child from responding).

(vii) When the mother immediately answers her own question before the child begins to answer.

Restricted interference.¹ Restricted interference consists of all nonverbal interference, i.e., physical contact, gestures, etc. It also includes all verbal interference that is not either modified by a subordinate clause or by some explanation for the interference. That is, the mother gives an unqualified injunction or command -- an imperative statement. For example: "Put the gun down", or "Don't leave the chair".

Elaborated interference. Elaborated interference is more particular and more differentiated than restricted interference, i.e., it is more verbal. It provides a reason for the interference, usually in the form of a subordinate clause or some other modifying statement. For example: "Put the gun down because the man wants us to work with the blocks", or "Don't leave the chair until we are finished playing with the blocks".

^{1, 2} Identified on an a posteriori basis.

II. HYPOTHESES

Hypothesis I

Total Maternal Interference is negatively correlated with the child's response latency.

Hypothesis II

Total Maternal Interference is positively correlated with the number of errors the child makes.

III. LIMITATIONS OF THE STUDY

(1) The study was limited to the investigation of only one variable hypothetically associated with reflection-impulsivity: maternal interference.

(2) The study was limited to the investigation of mother-child dyads from a middle socio-economic class.

(3) The study was limited by the author's definition of maternal interference.

CHAPTER IV

METHODOLOGY

I. SAMPLE

The 1967 City of Edmonton census data was used by Brady (1969) in determining an area that was representative of middle socio-economic status (SES). Thirty-two mother-child dyads volunteered for the experiment. Using additional standards (Hore, 1968; Blishen, 1958), he set out the following information showing the representativeness of his sample (Brady, 1969).

TABLE I

DESCRIPTIVE SOCIO-ECONOMIC DATA

SES (Blishen Index)	Mean: 54 Range: 43 to 75	
Combined Average Number of Years Education for Mother and Father	Mean: 11.5 Range: 8 to 18	
Combined Income of Mother and Father	Under \$5,000 per annum	N 2
	Between \$5,000 and \$10,000 per annum	N 21
	Over \$10,000 per annum	N 7

Brady (1969) summarized the data as follows:

Socio-economic data indicated the sample was middle class. Hore's (1968) sample of high SES and low SES had average Blishen Indexes of 71.15 and 45.94, respectively. This sample had an average Blishen Index of 54 which fell between Hore's samples. The other two indexes of socio-economic status positioned themselves similarly in relation to Hore's sample (1968). The number of people earning over \$10,000 per annum and the mean Blishen Index of 54 for the present sample indicated that the socio-economic status was middle class (p. 37).

The children in the study were all between the ages of four years and four years eleven months. There were seventeen boys and fifteen girls none of whom had had any kindergarten experience. The Van Alstyne Picture Vocabulary Test was used to insure that none of the children taking part in the study were of below average intellectual ability. This test has a correlation of .71 with the Stanford Binet for this age level. In like manner, the vocabulary section of the Wechsler Adult Intelligence scale was used to prevent the inclusion of any mothers who were below average in verbal ability. The above conditions were met by all subjects contacted.

II. EXPERIMENTAL PROCEDURE

Under the direction of Brady (1969) the personnel of the Audio-Visual Media Department of the University of Alberta made videotape recordings of the thirty-two mother-child couples interacting in a structured situation. (Because of videotaping difficulties only thirty of the

mother-child dyads were able to be analysed). They were first allowed to play with a number of toys that were present on the table. The toys were left on the table throughout the remainder of the experiment in order to provide a distracting stimulus for the child. On hearing a signal, the mother was to teach her child how to separate blocks on the basis of color, shape, and size. After each separation, the child was asked by the mother to explain the basis of his separation, e.g., "Why did you put the blocks like this?" When the block separation tasks were completed the mother and child were shown three Children Apperception Test Cards. They were instructed to make up stories about these cards. The purpose of this section of the experiment was to promote mother-child interaction.

III. MEASUREMENT OF INTERFERENCE

During the first fifteen minutes of the mother-child interaction, the author counted the total number of times the mother interfered with her child. The experimenter concentrated primarily on the child and made note of when the mother entered his field of activity and interfered with him. This total served as the interference score for the present experiment. The fifteen minute segment was chosen to allow for variations in the length of time taken for the experimental procedure. On a number of occasions the entire

interaction only lasted slightly over fifteen minutes. The reliability of the experimenter's judgement as to a unit of interference was found to have a rank order correlation of 0.90 with that of an independent judge.

IV. MEASUREMENT OF RESPONSE STYLE

The test of response style (reflection-impulsivity) consisted of twenty test cards. The child was shown a picture which served as the standard, below which were several similar designs only one of which was identical with the standard. The subject selected the picture that was identical with the standard. The standard and variations were always in view of the subject during the selection procedure. The time taken to make the initial selection and the number of errors made were the variables that served as a measure of reflectiveness. Brady (1969) found that the coefficient of internal consistency for time was .85 and for errors, .48 (Kuder-Richardson formula 20).

V. STATISTICAL ANALYSIS

Inter-rater reliability was computed using both Spearman's Coefficient of rank correlation (ρ) and Pearson's product-moment correlation (r) (Lordahl, 1967). The obtained coefficients were $\rho=0.90$ and $r=0.81$. Five randomly selected videotapes were used as a basis for determining

the inter-rater reliability.

Hypotheses I and II in the current study were tested using Spearman's rho to determine the rank order correlation between the total interference scores of the mother and both the response latency and the total errors of the child. An alpha level of .05 was used to determine the statistical significance of the correlation. Significance at the .05 level would require a correlation coefficient greater than 0.31 (Ferguson, 1959). Since the hypotheses were directional a one-tailed test was utilized.

CHAPTER V

RESULTS

The data yielded by the procedures outlined in the previous chapter were examined to see if they supported the proposed hypotheses.

Hypothesis I

Total Maternal Interference is negatively correlated with the child's response latency.

The correlation between maternal interference and the child's response latency ($p=-0.49$) was significant at the .05 level. The hypothesis was confirmed.

Hypothesis II

Total Maternal Interference is positively correlated with the number of errors the child makes.

The data confirmed this hypothesis and was significant at the .05 level. The analysis produced a Spearman's rank correlation of 0.56.

The results of the analysis support the hypotheses and thus confirm the prediction that maternal interference is related to a child's impulsiveness. That is, maternal interference is negatively related to the child's response

latency and positively related to the number of errors the child makes. The results are summarized in Table II.

TABLE II
CORRELATION OF TOTAL MATERNAL INTERFERENCE WITH
RESPONSE LATENCY AND ERRORS

	<u>Response Latency</u>	<u>Errors</u>
Total Maternal Interference	-0.49*	0.56*

* Significant at the .05 level.

During examination of the videotapes, an interesting observation was made which is supported by the literature reviewed in Chapter II (Bernstein, 1964; Brady, 1969). It was noted that different parents interfered in different ways. Based on Bernstein's (1964) work, the author identified two types of interference: elaborated and restricted.

Using the definitions of elaborated and restrictive interference, further hypotheses were made on an a posteriori basis.

Hypothesis III

Restrictive Maternal Interference is negatively correlated with the child's response latency.

Hypothesis IV

Elaborated Maternal Interference is positively correlated with the child's response latency.

Hypothesis V

Restrictive Maternal Interference is positively correlated with the number of errors the child makes.

Hypothesis VI

Elaborated Maternal Interference is negatively correlated with the number of errors the child makes.

Table III summarizes the data that pertains to the relationships not predicted on an a priori basis.

TABLE III

CORRELATIONS OF RESTRICTIVE AND ELABORATED MATERNAL INTERFERENCE WITH RESPONSE LATENCY AND ERRORS

	Restrictive Interference	Elaborated Interference
Response Latency	-0.37*	0.05
Errors	0.51*	0.01

*Significant at the .05 level.

The results summarized in Table III confirm the predictions made in Hypotheses III and V.

Restrictive Maternal Interference is significantly related to the child's response latency. The relationship is negative as was predicted. Restrictive Maternal interference is significantly related to the number of errors the child makes.

The predictions made in Hypotheses IV and VI were not confirmed. Elaborated Maternal Interference was not shown to be positively related with the child's response latency. Elaborated Maternal Interference was not shown to be negatively related to the number of errors the child makes.

It is noted that in each case, the hypotheses dealing with restrictive interference give results which are significant at the .05 level. Conversely elaborated interference has not been shown to be significantly related to either response latency or errors. The author makes the assumption then, that it is the restrictive type of interference that resulted in Hypotheses I and II being supported. These relationships are summarized in Table IV.

TABLE IV
RELATIONSHIPS BETWEEN TOTAL, RESTRICTIVE AND
ELABORATED INTERFERENCE WITH RESPONSE
LATENCY AND ERRORS

	Total Maternal Interference	Restrictive Interference	Elaborated Interference
Response Latency	-0.49	-0.37*	0.05
Errors	0.56*	0.51*	0.01

*Significant at the .05 level.

CHAPTER VI

DISCUSSION AND IMPLICATIONS

I. DISCUSSION

The findings of the thesis demonstrate that interfering mothers tend to develop in their children an approach to problem solving that is characterized by an impulsive response style. The child's lack of consideration for alternative solutions when a variety of solutions are simultaneously available tends to result in his making more errors than one who spends time reflecting before he answers. It was also demonstrated that mothers who interfere in a restrictive as opposed to an elaborated manner tend to produce impulsiveness in their children. The findings appear congruent, then, with the theory as outlined in Chapter II.

In observing the mother-child interaction, the investigator was left with the impression that a certain

amount of interference was beneficial and indeed necessary if the child was to complete his assigned task. Such an observation is in line with the thinking of Bruner (1966) who believes that exploration must be kept going and on the "right track". That is, a teacher must correct the learner in a fashion that eventually makes it possible for the learner to take over the corrective function himself. There would seem to be a rather fine line between optimum direction and interference. Baldwin (1948) came to the same conclusion when he wrote:

Conformity to cultural demands is not easily obtained without robbing him (the child) of that personal integrity which gives him a mind of his own and which supports him in his attempts to satisfy his curiosity and to carry out his ideas ... a happy medium can be reached (p. 135).

This investigation, then, does not imply that a mother's directive control of her child is not a desirable and in many instances a necessary procedure. A child needs the security of having certain aspects of his behavior closely defined and limited in the interest of personal welfare during the time he is in the process of learning (Bishop, 1951; Bruner, 1966). It does suggest, however, that excessive use of controls, although in many instances evoking the immediately desired behavior from the child, may militate against the best possible adjustment of the child. The author concludes then, that interference as defined is generally an undesirable factor because it is

related to impulsiveness.

Although Hypotheses IV and VI which were based on Bernstein's (1961) work were not confirmed, the results are in accord with the findings of Brady (1969). He, (Brady, 1969) noted that impulse delay was not related to an elaborated linguistic code, but rather to a warm maternal relationship. The suggestion was made by Brady (1969) that: "A refinement of Bernstein's position would be to include warmth in the maternal relationship". Brady¹ also noted that a mother who is excessively verbal may prevent her child from participating in the communication process. This may prove as harmful as using very restrictive codes. What effect the use of elaborated codes has on interference, however, still remains a problem for future research.

¹Unreported observations by Brady (1969).

II. IMPLICATIONS

The impulsive child, because he tends to make more errors, is apt to become anxious over his lack of success. This anxiousness in turn will produce even more impulsiveness (Kagan, 1964). After a repeated sequence of failure and anxiety due to impulsive answering, the child may gradually withdraw from problem situations (Kagan, 1964). When such a withdrawal occurs in the school setting, the child is often labelled by educators as lazy and apathetic or hostile and negative (Kagan, 1964). Thus a conflict results between the school and the child which further complicates the learning process. Tying in the foregoing comments with the results of the present investigation and with Sharrock's (1968) conclusion that variations in parental attitudes are closely related to school achievement, the author strongly suggests that the schools become more involved in parent education. The importance of the parent-child relationship, for example, could be made more generally known through some form of parent education. The schools are at present offering very little medical, psychological, educational, or social information and guidance to parents. Thus if parents are still the primary and most influential educational medium it would be most valuable for schools to undertake the education of parents and co-operate with

them to make their work with their children more effective.

Based on the results of the research, the author also offers to teachers a suggestion that they not force their students into an impulsive response style. Many teachers, because of impatience or pressure exerted by class and curriculum deadlines, do not allow their students to explore and experiment. The teacher tends to take away the child's right to make a mistake. Students are forced into a mold where they must work quickly on the assigned task. They must not vary from or go beyond the assigned task. It is important to let the child have and explore his own ideas and to be given the opportunity to express these ideas in the public setting of the classroom.

In conclusion, the concept of maternal interference in particular, and mother-child interaction in general, offers an inviting area for research with many implications for practice and theory. The present writer attempted to view one of the behavioral correlates of interference. It is hoped that some understanding of the cognitive development of children resulted.

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A P P E N D I X A

RAW DATA

RESPONSE STYLE OF CHILDREN¹

Mother	Response Latency	Errors
1	59	17
2	78	17
3	76	24
4	71	15
5	119	16
6	107	11
7	107	11
8	73	14
9	70	17
10	66	6
11	159	3
12	48	17
13	71	28
14	42	16
15		
16	64	15
17	130	3
18	217	13
19		
20	113	11
21	114	9
22	232	12
23	101	12
24	42	20
25	45	26
26	48	19
27	72	14
28	62	14
29	71	21
30	42	39
31	81	16
32	63	11

¹Brady (1969).

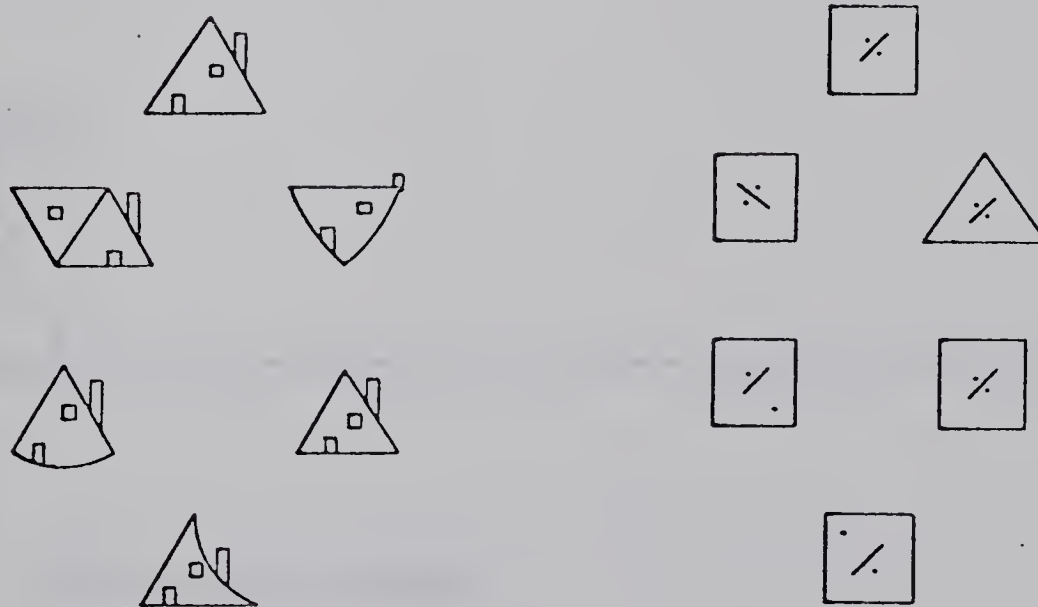
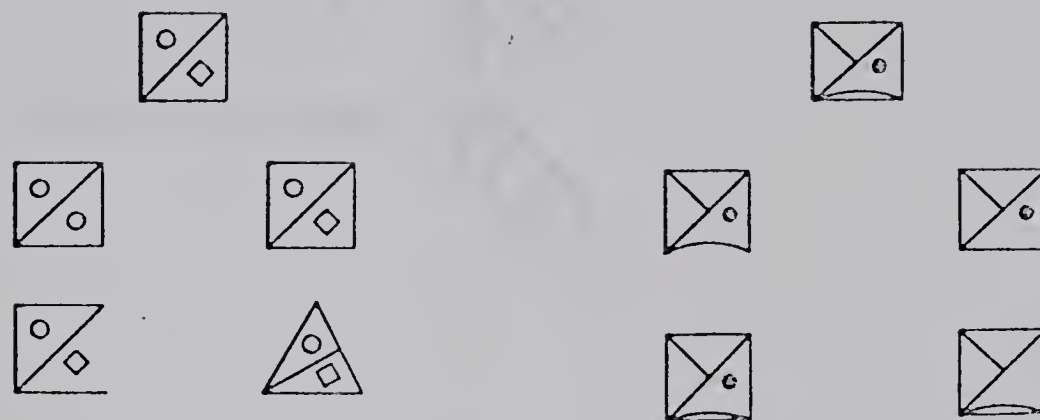
RAW DATA

MATERNAL INTERFERENCE

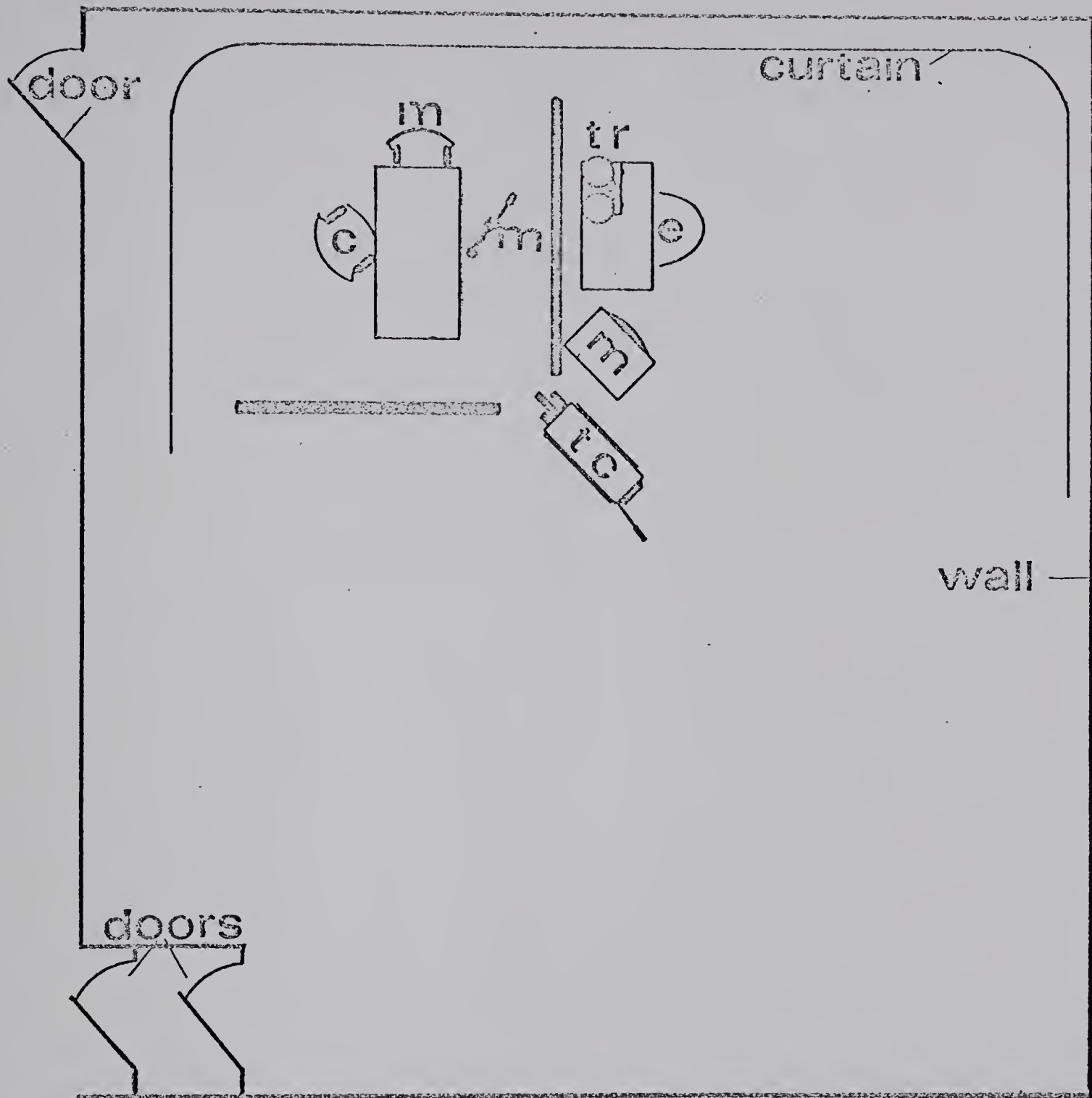
Mother	Total Interference	Elaborated Interference	Restrictive Interference
1	36	3	33
2	33	7	26
3	24	11	13
4	16	9	7
5	13	5	8
6	14	2	12
7	15	4	11
8	20	1	19
9	34	2	32
10	12	4	8
11	6	5	1
12	21	14	7
13	35	12	23
14	18	4	14
15			
16	32	4	28
17	13	9	4
18	13	3	10
19			
20	16	13	3
21	21	17	4
22	18	7	11
23	8	5	3
24	25	4	21
25	26	5	21
26	5	22	17
27	21	6	15
28	25	7	18
29	18	5	13
30	12	10	2
31	44	17	27
32	17	7	10

A P P E N D I X B

SAMPLE OF CARDS FROM LEARNING STYLE TEST¹



¹Brady (1969).

THE TECHNICAL ARRANGEMENT ¹

key

tc	TELEVISION CAMERA
m	MONITOR
e	EXPERIMENTER
tr	TAPE RECORDER
c	CHILD
m	MICROPHONE
m	MOTHER

¹Brady (1969).

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